

ABSTRACT OF THE DISCLOSURE

[0034] A lift truck having an acceleration sensor and a feedback control system for automatically adjusting the tilt angle of the load supporting surface relative to the lift truck during lift truck operation. The control system maintains the load supporting surface substantially perpendicular to the direction of the resultant of the gravitational force vector and the travel acceleration force vector. The sensor is mounted to the mast for sensing the direction of the resultant vector and is connected as the feedback element of the control system. A controller stores a reference input comprising a stored value of angular direction representing the angular direction of the resultant vector when the lift truck is at rest and the cargo support fork is horizontal. The deviation or error of the control system is the difference between the stored vector direction and the sensed vector direction of the resultant of the two accelerations. The controlled element of the feedback control system, to which the control system output is connected, is the mast tilt actuator of the lift truck. The mast tilt angle relative to the lift truck is controllably varied to bring the currently sensed resultant angular direction into alignment with the stored reference angular direction.

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